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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/762,848	01/22/2004	Aaron Geisberger	34003.96	5881
27683	7590	06/16/2005	EXAMINER	
HAYNES AND BOONE, LLP 901 MAIN STREET, SUITE 3100 DALLAS, TX 75202			PERALTA, GINETTE	
			ART UNIT	PAPER NUMBER
			2814	
DATE MAILED: 06/16/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No.	Applicant(s)	
	10/762,848	GEISBERGER ET AL.	
	Examiner	Art Unit	
	Ginette Peralta	2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>5/13/04</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-5 are rejected under 35 U.S.C. 102(e) as being anticipated by Knollenberg et al. (US Pat. Pub. 2004/0160118 A1).

Regarding claim 1, Knollenberg et al. discloses in Fig. 6 a MEMS device that comprises a plurality of actuator layers formed over a substrate 600; a bimorph actuator having a substantially serpentine pattern, wherein the serpentine pattern is a staggered pattern having a plurality of static segments 605 interlaced with a plurality of deformable segments (601, 609), each of the plurality of static segments 605 having a static segment length and each of the plurality of deformable segments (601, 609) having a deformable segment length, wherein the deformable segment length is substantially different than the static segment length, and wherein at least a portion of each of the plurality of deformable segments (601, 609) and each of the plurality of static segments 605 is defined from a common one of the plurality of actuator layers.

Regarding claim 2, Knollenberg et al. discloses in Fig. 6, that each of the plurality of static segments 605 is defined from a first one of the plurality of actuator layers and each of the plurality of deformable segments (601, 609) is defined from the first one and an adjacent second one of the plurality of actuator layers, as disclosed in ¶[0050].

Regarding claim 3, Knollenberg et al. discloses in ¶[0061] that the first and second ones of the plurality of actuator layers have different coefficients of thermal expansion.

Regarding claim 4, Knollenberg et al. discloses in Fig. 6 that the device further comprises a payload 612 coupled to the bimorph actuator and movable between first and second orientations in response to exposure of the bimorph actuator to one of thermal energy and electrical energy, as disclosed in ¶[0049].

Regarding claim 5, Knollenberg et al. discloses in Fig. 6 that at least one of the plurality of deformable segments and the plurality of static segments has a substantially rectilinear pattern.

3. Claims 13-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Sarkar et al. (U. S. Pat. 6,718,764 B1).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the

reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding claim 13, Sarkar et al. discloses in Figs. 2A-2D, and 3A-3C, a MEMS device that comprises a plurality of actuator layers (201, 202, 203, 301, 303, 304) formed over a substrate 204; a bimorph actuator comprising a plurality of segments defined from the plurality of actuator layers and each having a substantially figure-8 shaped configuration.

Regarding claim 14, Sarkar et al. discloses in Figs. 2A-2D, and 3A-3C, a MEMS device wherein a first one of the plurality of segments includes a first portion 305 defined from a first one of the plurality of actuator layers, wherein a first end of the first portion 304 is electrically connected to a second one of the plurality of segments laterally disposed from the first one of the plurality of segments; a second portion 303 defined from a second one of the plurality of actuator layers, wherein a first end of the second portion end is electrically connected to a second end of the first portion; a third portion 304 defined from the first one of the plurality of actuator layers, wherein a first end of the third portion is electrically connected to a second end of the second portion; and a fourth portion 303 defined from the second one of the plurality of actuator layers, wherein a first end of the fourth portion is electrically connected to a second end of the third portion 304, and wherein a second end of the fourth portion is electrically connected to a third one of the plurality of segments laterally disposed from the first one of the plurality of segments.

Regarding claim 15, Sarkar et al. discloses that the second and fourth portions 303 are defined from the second one of the plurality of actuator layers and an adjacent third one of the plurality of actuator layers.

Regarding claim 16, Sarkar et al. discloses in Fig. 3A a payload 301 coupled to the bimorph actuator and movable between first and second orientations in response to exposure of the bimorph actuator to one of thermal energy and electrical energy, as disclosed in col. 8, lines 56-67, and col. 9, lines 18-29.

Regarding claim 17, Sarkar et al. discloses in Fig. 3A that at least one of the plurality of segments has a substantially rectilinear pattern.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Knollenberg et al. in view of Chen et al. (US Pat. Pub. 2004/0126254 A1).

Regarding claim 6, Knollenberg et al. discloses the claimed invention as applied above and further including that the actuator segments may have a hexagon, triangle, square or any other shape, but not disclosing at least one of the deformable segments and static segments having a substantially curvilinear shape.

Chen et al. discloses in Fig. 1 a MEMS device that comprises deformable segments having a substantially curvilinear pattern, wherein the segments having a curvilinear pattern are taught for the disclosed intended purpose of forming working devices in which space is at a premium.

Thus, it would have been obvious to one of ordinary skill in the art to form the MEMS device of Knollenberg et al. having a curvilinear pattern as Chen et al. discloses for the disclosed intended purpose of forming working devices when space is at a premium and since Knollenberg et al. discloses that the actuator segments may have any desired shape and the invention will still perform as expected.

6. Claims 7-12 and 18-20 are rejected under 35 U.S.C. 103(a) as being obvious over Sarkar et al. in view of Chen et al..

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the

application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Regarding claim 7, Sarkar et al. discloses in Figs. 2A-2D, and 3A-3C, a MEMS device that comprises a plurality of actuator layers (201, 202, 203, 301, 303, 304) formed over a substrate 204; a bimorph actuator comprising a plurality of segments defined from the plurality of actuator layers and each having a substantially serpentine configuration.

Regarding claim 6, Sarkar et al. discloses the claimed invention as applied above but not disclosing the plurality of segments thereby forming a helical configuration.

Chen et al. discloses in Fig. 1 a MEMS device that comprises deformable segments having a substantially helical configuration, wherein the segments having a curvilinear pattern and forming a helical configuration are taught for the disclosed intended purpose of forming working devices in which space is at a premium.

Thus, it would have been obvious to one of ordinary skill in the art to form the MEMS device of Sarkar et al. having a helical configuration as Chen et al. discloses for the disclosed intended purpose of forming working devices when space is at a premium and since Sarkar et al. discloses that the actuator segments may have any desired shape and the invention will still perform as expected.

Regarding claim 8, Sarkar et al. discloses in Figs. 2A-2D, and 3A-3C, a MEMS device wherein a first one of the plurality of segments includes a first portion 305 defined from a first one of the plurality of actuator layers, wherein a first end of the first portion 304 is electrically connected to a second one of the plurality of segments laterally disposed from the first one of the plurality of segments; a second portion 303 defined from a second one of the plurality of actuator layers, wherein a first end of the second portion end is electrically connected to a second end of the first portion; a third portion 304 defined from the first one of the plurality of actuator layers, wherein a first end of the third portion is electrically connected to a second end of the second portion; and wherein a second end of the third portion is electrically connected to a third one of the plurality of segments laterally disposed from the first one of the plurality of segments.

Regarding claim 9, Sarkar et al. discloses that the second portion 303 is defined from the second one of the plurality of actuator layers and an adjacent third one of the plurality of actuator layers.

Regarding claim 10, Sarkar et al. discloses in Fig. 3A a payload 301 coupled to the bimorph actuator and movable between first and second orientations in response to exposure of the bimorph actuator to one of thermal energy and electrical energy, as disclosed in col. 8, lines 56-67, and col. 9, lines 18-29.

Regarding claim 11, Sarkar et al. discloses in Fig. 3A that at least one of the plurality of segments has a substantially rectilinear pattern.

Regarding claims 12 and 18, Sarkar et al. as modified by Chen et al. discloses that the plurality of segments has a substantially curvilinear pattern.

Regarding claims 19 and 20, Sarkar et al. discloses the claimed invention with the exception of disclosing the patterned line width. But, it would have been obvious to one of ordinary skill in the art at the time the invention was made to vary the patterned line width as there is no statement denoting the criticality of the patterned line width and since Sarkar et al. discloses a micromachined actuator which by definition has line widths in the microns range.

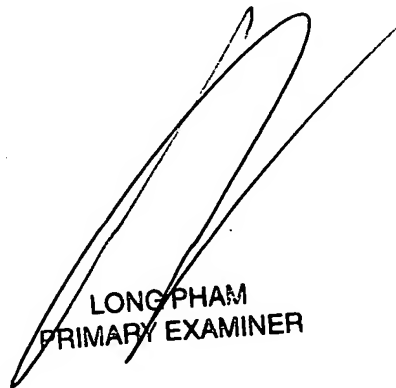
"In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990) (The prior art taught carbon monoxide concentrations of "about 1-5%" while the claim was limited to "more than 5%." The court held that "about 1-5%" allowed for concentrations slightly above 5% thus the ranges overlapped.)" (MPEP 2144.04)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ginette Peralta whose telephone number is (571) 272-1713. The examiner can normally be reached on Monday to Friday 8:00 AM- 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GP



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